CLAIMS

What is claimed is:

1. A method of allocating bandwidth capacity for data frames transmitted over a SONET ring, comprising the steps of:

subdividing a portion of the data frames comprising a SONET ring transmission into one or more logical frames, each logical frame having associated therewith a predetermined bandwidth capacity;

assigning a protection mechanism to each logical frame; and

monitoring the SONET ring transmission to determine protection mechanisms associated with each logical frame.

2. The method of claim 1 wherein the data frames comprise a plurality of STS level one frames.

3. The method of claim 2 wherein the protection mechanism comprises one of a layer 1 SONET protection mechanism and a layer 2 protection mechanism.

4. The method of claim 3 wherein, if the protection mechanism assigned to a logical frame is not layer 1, the bandwidth capacity for that logical ring is allocated among three or more nodes comprising the SONET ring.

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5.   The method of claim 3 wherein the layer 1 protection mechanism comprises a bi-directional line switched ring protection mechanism.

6.   The method of claim 3 wherein the layer 1 protection mechanism comprises a unidirectional path switched ring protection mechanism.

7.   The method of claim 3 wherein the layer 2 protection mechanism comprises at least one of: an Ethernet protection mechanism, an asynchronous transport mode protection mechanism, or a time division multiplexing protection mechanism.

8.   A network node for use in a SONET ring, comprising:

a first circuit configured to subdivide a portion of data frames comprising a SONET ring transmission into one or more logical frames, each logical frame having associated therewith a predetermined bandwidth capacity;

a second circuit configured to assign a protection mechanism corresponding to a SONET protection level to each logical frame; and

a third circuit operable to monitor the SONET ring transmission to determine protection mechanisms associated with each logical frame.

9.   The network node of claim 8 wherein the data frames comprise a plurality of STS level one frames.

10.   The network node of claim 9 wherein the protection mechanism comprises one of a layer 1 SONET protection mechanism and a layer 2 protection mechanism.

11.   The network node of claim 10 wherein, if the protection mechanism assigned to a logical frame is not layer 1, the bandwidth capacity for that logical ring is allocated among three or more nodes comprising the SONET ring.

12.   The network node of claim 10 wherein the layer 1 protection mechanism comprises a bi-directional line switched ring protection mechanism.

13.   The network node of claim 10 wherein the layer 1 protection mechanism comprises a unidirectional path switched ring protection mechanism.

14.   The network node of claim 10 wherein the layer 2 protection mechanism comprises at least one of: an Ethernet protection mechanism, an asynchronous transport mode protection mechanism, or a time division multiplexing protection mechanism.

15.   The network node of claim 8 wherein the data frames comprise a plurality of VT-1.5 level frames.